

NOTES ON BROMELIACEAE, XIX

Lyman B. Smith

MEXICO

TILLANDSIA LEUCOLEPIS L. B. Smith, sp. nov.

A *T. calothyrsos* Mez, cui affinis, inflorescentia laxa, bracteis florigeris ecarinatis, sepalis liberis differt.

Stemless, about 1.5 m. high; leaves many in a spreading rosette, 6-8 dm. long, covered with cinereous appressed scales; sheaths elliptic, 25 cm. long, purple-black; blades recurving, narrowly triangular, attenuate, 7 cm. wide at base, flat; scape ascending; scape-bracts imbricate but with recurving foliaceous blades; inflorescence subtripinnate with the lowest branches divided; primary bracts ovate, red, about equaling or exceeding the bracteate sterile bases of the branches, the lower foliaceous-laminate, the upper attenuate; secondary bracts scarcely larger than the floral bracts; spikes oblong, strongly complanate, to 13 cm. long exclusive of the bracteate sterile base, 3 cm. wide, subdensely 13-flowered; rhachis flexuous, alate, largely exposed; floral bracts imbricate, elliptic, acute, 34 mm. long, ecarinate, covered with white appressed scales; pedicels short; sepals free, lance-oblong, acute, 33 mm. long, glabrous, the posterior carinate; petals linear, 5 cm. long, naked; stamens exerted. Pl. I, fig. 1: Habit x ca. 1/20; fig. 2: Spike x 1/2; fig. 3: Sepal x 1.

✓Type in the U. S. National Herbarium, collected from cultivated material, State of Oaxaca, Mexico, March 15, 1962, by T. MacDougall (No. 280).

COSTA RICA

VRIESEA AMPLA L. B. Smith, sp. nov.

A *V. pittieri* Mez, cui valde affinis, foliis late rotundatis vel subacutis subtus albo-lepidotis, rhachi crassiore, bracteis florigeris amplissimis differt.

Stemless; leaves about 12 in a broadly funnelform rosette, 3-6 dm. long, covered with white appressed dark-centered scales; sheaths elliptic-oblong, large but inconspicuous and not much wider than the blades, brownish from the prominent centers of the scales; blades ligulate, broadly rounded or subacute, apiculate, 5-6 cm. wide, flat, becoming glabrous above; scape straight or curved, stout; scape-bracts erect, imbricate, the lower subfoliaceous, the upper broadly ovate, apiculate, obscurely punctate-lepidote, yellow when dry; inflorescence simple, dense, 20-30 cm. long, appearing glabrous; rhachis geniculate, angled, 7-8 mm. thick; floral bracts partially secund with the flowers, broadly ovate, 35-40 mm. long, 40-50 mm. wide, cucullate, ecarinate, coriaceous, even, yellow to castaneous when dry with a narrow paler margin; pedicels stout, 8 mm. long; sepals broadly ovate, obtuse,

cucullate, 30-40 mm. long, ecarinate, coriaceous; petals at least 15 mm. longer than the sepals; stamens included. Pl. I, fig. 4: Apex of leaf x 1/2; fig. 5: Spike x 1/2; fig. 6: Sepal x 1.

Type in the U. S. National Herbarium, collected on ground and trees, 10 miles south of Cartago on Inter-American Highway, Talamanca Mountains, Province of Cartago, Costa Rica, altitude 1830 m., July 10, 1962, by A. Lee Haines and Bruce L. Haines (No. 688)

COSTA RICA: Cartago: On stump, Inter-American Highway 6 miles south of Cartago, Talamanca Mountains, alt. 1650 m., Haines 670 (US); same, 18 miles south of Cartago, alt. 1815 m., Haines 716 (US); on tree, Cerro de La Carpintera, alt. 1500-1850 m., Standley 34364 (US).

*VRIESEA HAINESI* L. B. Smith, sp. nov.

A *V. viride* (Mez & Wercklé) Sm. & Pitt., cui aliquid affinis, inflorescentia pauciflora laxissima, axi gracillimo, bracteis florigeris sepalisque majoribus differt.

Stemless, flowering 35 cm. high; leaves many in a broad rosette, 20 cm. long, covered with white appressed dark-centered scales; sheaths elliptic, 7-8 cm. long; blades narrowly triangular, attenuate, 15 mm. wide at base; scape slender, curved; scape-bracts erect, red, their elliptic sheaths shorter than the upper internodes but their foliaceous blades much exceeding them; inflorescence few-flowered, very lax, 7 cm. long; axis slender, geniculate; primary bracts long-attenuate from an ovate base, the lowest nearly equaling the flowers; branches spreading, densely 2-flowered, the sterile base naked, slender, 8 mm. long; floral bracts suborbicular, 16 mm. long, exceeded by the sepals, coriaceous, soon glabrous, yellow, carinate; pedicels stout, 3 mm. long; sepals elliptic, broadly rounded, 20 mm. long; petals 28 mm. long, bearing 2 acute scales at base. Pl. I, fig. 7: Apex of leaf x 1/2; fig. 8: Inflorescence x 1/2; fig. 9: Sepal x 1; fig. 10: Petal x 1.

Type in the U. S. National Herbarium, collected on the Inter-American Highway, 6 miles south of Cartago, Talamanca Mountains, Province of Cartago, Costa Rica, altitude 1650 m., July 10, 1962, by A. Lee Haines and Bruce L. Haines (No. 682).

*VRIESEA LEUCOPHYLLA* L. B. Smith, sp. nov.

A *V. spectabile* (Mez & Wercklé) Sm. & Pitt., cui affinis, foliis concoloribus omnino albo-lepidotis, bracteis primariis patentibus attenuatis differt.

Stemless, flowering 36-60 cm. high; leaves many in a broadly funnelform rosette, 30-33 cm. long, covered throughout with white appressed dark-centered scales; sheaths elliptic, 12 cm. long; blades narrowly triangular, 25 mm. wide at base, flat; scape slightly curved; scape-bracts densely imbricate, subfoliaceous, red; inflorescence laxly cylindrical, bipinnate, 14-28 cm. long; axis slender, nearly straight, almost black when dry, glabrous; primary bracts spreading, attenuate from a broadly ovate base, to 8 cm. long, red, white-lepidote toward apex; branches densely 2-flowered, the naked sterile base to 8 mm. long, floral

bracts suborbicular, to 14 mm. long, about equaling the sepals, subcoriaceous, yellow when dry, glabrous; flowers subsessile; sepals somewhat asymmetric, broadly obovate, subtruncate, to 14 mm. long. Pl. II, fig. 1: Branch of inflorescence x 1/2; fig. 2: Sepal x 1.

Type in the U. S. National Herbarium, collected on rock outcrop, 11 miles south of Cartago on Inter-American Highway, Talamanca Mountains, Province of Cartago, Costa Rica, alt. 1860 m., July 10, 1962, by A. Lee Haines and Bruce L. Haines (No. 693). Small specimen in young flower.

COSTA RICA: Cartago: On tree, 18 miles south of Cartago on Inter-American Highway, north side of Talamanca Mountains, alt. 1985 m., Haines 763 (US, large specimen in fruit); same, 6 miles south of Cartago, alt. 1650 m., Haines 679 (Hb. Haines, in fruit; US, immature inflorescence).

#### COLOMBIA

*TILLANDSIA CONFINIS* var. *CAUDATA* L. B. Smith, var. nov.

A var. confinis bracteis primariis infimis longe caudato-laminatis, laminis spicas superantibus differt.

Inflorescence 3 dm. long; lower primary bracts to 15 cm. long, their caudate-attenuate blades much exceeding the axillary spikes but their sheaths much shorter.

Type in the U. S. National Herbarium, collected on Sabana Rubia, Manaure road, Municipio of Robles, Serranía de Perijá, Department of Magdalena, Colombia, altitude 2800 m., March 3, 1959, by R. Romero-Castañeda (No. 7323).

*TILLANDSIA ROMEROI* L. B. Smith, sp. nov.

A T. lajensi André atque T. arcuata L. B. Smith, quibus affinis, spicis multo longioribus, bracteis florigeris apice breviter carnoseque carinatis, sepalis vix carinatis differt.

Stemless, flowering 1 m. high; leaves 5 dm. long, covered beneath with pale appressed dark-centered scales; sheaths elliptic, ca. 15 cm. long; blades narrowly triangular, 5 cm. wide at base, becoming glabrous above; scape erect; scape-bracts strict, densely imbricate, subfoliaceous, the upper red; inflorescence typically compound from 4 spikes, lax; axis stout, geniculate, short; primary bracts broadly ovate, apiculate, scarcely larger than the floral bracts; spikes erect to spreading, linear, strongly complanate, 14-30 cm. long with the terminal largest, 3-4 cm. wide, densely many-flowered, the sterile base short, 1-bracteate; floral bracts suborbicular, apiculate, to 45 mm. long, about equaling the sepals, thin-coriaceous, nearly even, glabrous, red, bearing a short fleshy keel at apex; flowers short-pedicellate; sepals lance-oblong, subacute, 35 mm. long, mostly ecarinate, sparsely brown-lepidote; petal-blades elliptic, 8 mm. long, violet; stamens included. Pl. II, fig. 3: Apex of leaf x 1/2; fig. 4: Spike x 1/2; fig. 5: Sepal x 1.

Type in the U. S. National Herbarium, collected on tree, Sabana Rubia, Manaure road, Municipio of Robles, Serranía de Perijá,

Department of Magdalena, Colombia, altitude 2800 m., March 3, 1959, by R. Romero-Castañeda (No. 7307).

*VRIESEA MAGDALENAE* L. B. Smith, sp. nov.

A *V. hospitali* (L. B. Smith) L. B. Smith, cui affinis, bracteis florigeris acuminatis sepala superantibus carinatis coriaceis differt.

Stemless, flowering over 1 m. high; leaves 4-6 dm. long; finely and regularly red-striped, obscurely punctate-lepidote; sheaths elliptic, ca. 15 cm. long, brownish; blades ligulate, broadly subacute and apiculate, 5 cm. wide; scape erect, 1 cm. in diameter, red; scape-bracts erect, the upper about equaling the internodes, broadly ovate, apiculate, red; inflorescence slenderly thyrsoid, 35 cm. long, 6 cm. wide, dense toward apex, interrupted below, nearly glabrous; axis straight, slender; primary bracts very broadly ovate, apiculate, about half as long as the branches and equaling the lower spikes, punctate toward apex; branches divergent, mostly of 3 subfasciculate spikes with the 2 basal much smaller than the terminal; spikes broadly ovate, strongly complanate, 2-3 cm. long, subdensely few-flowered; rachis geniculate, angled, almost wholly exposed; floral bracts ovate, acuminate, to 20 mm. long, exceeding the sepals, sharply carinate, coriaceous, nerved, green; flowers sessile; sepals free, elliptic, acute, 13 mm. long, coriaceous, nerved, the posterior carinate; petals 4 mm. longer than the sepals, pale yellow, bearing 2 scales at base; stamens included. Pl. II, fig. 6: Apex of leaf x 1/2; fig. 7: Branch of inflorescence x 1/2; fig. 8: Sepal x 1.

Type in the U. S. National Herbarium, collected on tree, vicinity of Cebolleta, Department of Magdalena, Colombia, altitude 2400 m., February 1, 1959, by R. Romero-Castañeda (No. 7199).

#### PERU

#### FOSTERELLA L. B. Smith

*Schidospermum* Griseb. in Lechler, Berberid. Amer. Austr. 56. 1857. Nomen.

*Fosterella* L. B. Smith, Phytologia 7:171. 1960.

In filing a series of type photographs of Liliaceae, I was struck by the familiar appearance of the monotypic *Schidospermum* Griseb., supposedly a synonym of *Chlorophytum*. The specimen is obviously a *Fosterella* in the Bromeliaceae and fortunately has no description (thanks to information from Dr. Bernice G. Schubert), so that it will not be necessary to make new combinations for the whole genus. The species was described later from the same collection by Baker as *Chlorophytum schidospermum* and this specific name must be considered as follows:

*FOSTERELLA SCHIDOSPERMA* (Baker) L. B. Smith, comb. nov.

*Schidospermum sanseviera* Griseb. in Lechler, Berberid. Amer.

Austr. 56. 1857. Nomen.

Chlorophytum schidospermum Baker, Journ. Linn. Soc. Bot. 15:326. 1876.

Cottendorfia rusbyi Baker, Bull. Torrey Bot. Club 29:697. 1902.

Not Lindmania rusbyi Mez, 1901.

Lindmania weberbaueri Mez, Fedde Rep. Spec. Nov. 12:417. 1913.

Fosterella weberbaueri (Mez) L. B. Smith, Phytologia 7:172. 1960.

PERU: Junín: Chanchamayo Valley, alt. 1500 m., Schunke 273 (F). La Merced, alt. 700 m., Macbride 5352 (F, GH). Río Paucartambo Valley, near Perené Bridge, alt. 700 m., Killip & A. C. Smith 25326 (NY, US). Vitoc, 13 km. from San Ramón, Soukup 2446 (US). AYACUCHO: Prov. Huanta: By the Río Pieni, Weberbauer 5635 (B, type of Lindmania weberbaueri Mez; F photo no. 11460). PUNO: San Gabán, July 1854, Lechler 2382 (G, type number of Schidospermum sanseviera Griseb. and of Chlorophytum schidospermum Baker; F photo no. 25148).

BOLIVIA: La Paz: Yungas, alt. 2000 m., Rusby 2541 (NY, type of Cottendorfia rusbyi Baker; US).

PUYA COMMIXTA L. B. Smith, sp. nov.

A P. lasiopoda L. B. Smith, cui valde affinis, spicis subsessilibus differt.

Flowering 6 dm. high; leaves 2 dm. long; sheaths ample, dark castaneous, forming a bulb 5 cm. in diameter; blades very narrowly triangular, 15 mm. wide at base, densely cinereous-lepidote beneath, glabrous above, laxly serrate with slender spreading brown spines 4 mm. long; scape slender, soon glabrous; scape-bracts imbricate, the lower foliaceous, the upper ovate, acuminate, pectinate, red, finely white-stellate; inflorescence laxly bipinnate, 25 cm. long, finely white-lanate; primary bracts more or less secund with the branches, broadly ovate, acuminate, red, chartaceous, the lower ones serrulate; spikes densely ellipsoid or obovoid, 5-7 cm. long, subsessile; floral bracts like the primary bracts but narrower and entire, about equaling the sepals; flowers erect; pedicels obconic, 3 mm. long, inconspicuous; sepals linear, acute, nearly 4 cm. long, 4 mm. wide, ecarinate; petals strongly contorted and purple when dry. Pl. II, fig. 9: Branch of inflorescence x 1/2; fig. 10: Sepal x 1.

Type in the U. S. National Herbarium, collected on dry open hillside among rocks, fog belt, on trail, 2-6 km. from Oconeque, Province of Sandia, Department of Puno, Peru, altitude 1800-2100 m., May 22-25, 1942, by R. D. Metcalf (No. 30591 of the University of California, Third Botanical Garden Expedition to the Andes directed by T. H. Goodspeed). Isotype in the University of California.

PUYA LOPEZII L. B. Smith, sp. nov.

A P. lanata (H.B.K.) Schult. f., cui valde affinis, bracteis florigeris apice contractis minoribusque, sepalis oblongis differt.

Known only from fragments but probably flowering over 1 m.

high: leaves rosulate, ca. 8 dm. long; sheaths suborbicular, 10 cm. long, the basal part yellow and glabrous, the apical dark castaneous and covered with coarse white appressed scales; blades narrowly triangular, 5 cm. wide, covered on both sides with appressed white scales, laxly serrate with flat brown uncinatate spines 8 mm. long; upper part of scape 8 mm. in diameter, soon glabrous; upper scape-bracts ovate with a long narrowly triangular apex, exceeding the internodes but exposing most of the scape, entire, rugose when dry as if formerly fleshy; inflorescence simple, subdensely cylindric, interrupted at base, over 5 dm. long, densely and finely white-stellate; floral bracts broadly ovate, contracted to a narrowly triangular apex, the lowest exceeding the sepals, the upper much shorter; flowers suberect; pedicels obconic, 6 mm. long; sepals oblong, acute, 26 mm. long, ecarinate; petals 40 mm. long, yellowish; stamens included. Pl. II, fig. 11: Floral bract and flower x 1/2; fig. 12: Sepal x 1.

Type in the U. S. National Herbarium, collected on dry slopes, Huaylillas, Province of Pataz, Department of La Libertad, Peru, altitude 2300 m., May 24, 1961, by A. López and A. Sagástegui (No. 3549).

**PUYA SAGASTEGUII** L. B. Smith, sp. nov.

A *P. lanata* (H.B.K.) Schult. f., cui affinis, bracteis florigeris apice contractis, sepalis angustis minoribusque, petalis purpureis differt.

Known only from fragments but probably over 1 m. high; leaves over 8 dm. long; blades narrowly triangular, 25 mm. wide, covered on both sides with white appressed scales, laxly serrate with slender brown uncinatate spines 7 mm. long; scape unknown; inflorescence simple, subdensely many-flowered, densely and finely pale-lanate, becoming subglabrous, the base unknown; floral bracts ovate, contracted to a caudate apex, shorter than the sepals (so far as known); flowers divergent; pedicels obconic, 5 mm. long; sepals linear-lanceolate, 23 mm. long, 3.5 mm. wide, ecarinate; petals with lateral folds, contorted after anthesis. Pl. II, fig. 13: floral bract and flower x 1/2; fig. 14: Sepal x 1.

Type in the U. S. National Herbarium, collected on dry slope, Huaylillas, Province of Pataz, Department of La Libertad, Peru, altitude, 2500 m., May 24, 1961, by A. López and A. Sagástegui (No. 3548).

**TILLANDSIA LOPEZII** L. B. Smith, sp. nov.

A *T. kuntzeana* Mez, cui affinis, laminis foliorum subglabris, inflorescentia subdigitata differt.

Apparently stemless, flowering 65 cm. high; leaves 35 cm. long; sheaths ovate, ca. 10 cm. long, minutely appressed-lepidote, dark purple; blades ligulate-triangular, acuminate, 45 mm. wide, flat, green with purple splotches, very obscurely lepidote beneath; scape erect, 7 mm. thick, glabrous; scape-bracts erect, imbricate, the lower foliaceous but reduced, the upper ovate, apiculate, lustrous; inflorescence subdigitate from 6 spikes;

primary bracts suberect, broadly ovate, apiculate, to 4 cm. long; spikes subsessile, narrowly lanceolate, acute, 7-9 cm. long, 2 cm. wide, slightly complanate, densely 8-9-flowered; floral bracts broadly elliptic, acute, equaling or exceeding the sepals, sharply carinate, except for the apex and narrow margins drying nearly black and lustrous, coriaceous, glabrous; sepals elliptic, apiculate, 30 mm. long, glabrous outside, the posterior carinate, connate for 3 mm. Pl. II, fig. 15: Spike x 1/2; fig. 16: Posterior sepals x 1.

Type in the U. S. National Herbarium, collected on rocks, road to Cujibamba, Province of Bolívar, Department of La Libertad, Peru, altitude 3300 m., June 1, 1960, by A. López and A. Sagástegui (No. 3307).

**TILLANDSIA SAGASTEGUII** L. B. Smith, sp. nov.

A *T. platyphylla* Mez, cui affinis, foliorum laminis acuminatis, sepalis bracteis florigeras superantibus differt.

Flowering to 2 m. high; leaves over 1 m. long; sheaths oblong, scarcely distinguishable from the blades except by the brownish color, over 12 cm. wide, densely vestite with minute brown appressed scales; blades narrowly triangular, acuminate, flat, green, obscurely lepidote beneath, glabrous above; scape not seen; inflorescence amply tripinnate, essentially glabrous, glaucous; lower primary bracts subfoliaceous, nearly equaling the axillary branches, the upper primary bracts caudate from a broadly ovate base, shorter than the one-bracteate sterile base of the branches; branches of 4 subdigitate spikes, ascending, to 25 cm. long; spikes linear, complanate, to 15 cm. long including the short sterile base, 15-18 mm. wide, subdensely many-flowered; rhachis nearly straight, strongly winged; floral bracts more than twice as long as the internodes but exposing most of the rhachis, elliptic, broadly acute, ca. 17 mm. long, distinctly exceeded by the sepals at anthesis, ecarinate except near the minutely incurved apex, coarsely and faintly sulcate; pedicels inconspicuous, 2 mm. long; sepals free, oblong, subacute, 21 mm. long, subcoriaceous, glabrous outside, minutely lepidote inside, the posterior carinate; petal-blades elliptic, 18 mm. long, violet; stamens included. Pl. II, fig. 17: Apex of leaf x 1/2; fig. 18: Spike x 1/2; fig. 19: Sepal x 1.

Type in the U. S. National Herbarium, collected on trees, near Santiago, Guzmango, Province of Contumaza, Department of Cajamarca, Peru, altitude 2600 m., August 3, 1960, by A. Sagástegui (No. 3390).

**TILLANDSIA TRUXILLANA** L. B. Smith, sp. nov.

A *T. cauligera* Mez, cui affinis, spica laxiore, rhachi haud obiecta, sepalis liberis, petalis albis differt.

Caulescent; stem over 15 cm. long, 8 mm. in diameter; leaves densely imbricate, recurved-spreading, 20 cm. long, densely appressed-lepidote; sheaths elliptic, ca. 5 cm. long, merging with the blades, ferruginous; blades very narrowly triangular, long-acuminate, 20 mm. wide at base; scape distinct, 15 cm. long;

scape-bracts erect, densely imbricate, densely lepidote, the lower subfoliaceous but much reduced, the upper broadly elliptic and apiculate; inflorescence simple, broadly lanceolate, acute, 11 cm. long, 4 cm. wide, strongly complanate; rhachis flexuous, winged, soon glabrous; floral bracts erect, many times longer than the internodes but narrowed at base and exposing most of the rhachis, obovate, acute, 4 cm. long, minutely incurved at apex, ecarinate, densely lepidote, evidently fleshy because rugose on drying; pedicels 2 mm. long; sepals free, elliptic, broadly acute and apiculate, 28 mm. long, subcoriaceous, subdensely lepidote; petals 5 cm. long, white; stamens included; filaments plicate; style elongate. Pl. III, fig. 1: Spike x 1/2; fig. 2: Sepal x 1.

Type in the U. S. National Herbarium, collected on rocks, Camino de las Quishuas, Province of Bolívar, Department of La Libertad, Peru, altitude 3000 m., May 31, 1960, by A. López and A. Sagástegui (No. 3296).

*VRIESEA CEREICOLA* (Mez) L. B. Smith, *Phytologia* 6:194. 1958.

*Tillandsia cereicola* Mez in Fedde, *Rep. Nov. Spec.* 3:34. 1906.

*Vriesea lopezii* L. B. Smith, *Phytologia* 4:218, pl. 2, figs. 8-10. 1953.

*Vriesea lopezii* was described before I realized that *Tillandsia cereicola* was a *Vriesea*. Now I can find no good distinction between the two species.

#### BOLIVIA

*BILLBERGIA MICROLEPIS* L. B. Smith, sp. nov.

A *B. formosa* Ule, cui affinis, inflorescentia laxa elongata, sepalis minoribus differt.

Known only from fragments but apparently the habit typical of *Billbergia* subgenus *Helicodea*; leaves 50-75 cm. long, densely appressed-lepidote on both sides, white-banded beneath; sheaths elliptic, over 26 cm. long; blades ligulate, subacute and apiculate, 5-7 cm. wide, laxly serrate with flat black spreading teeth 1.5-5 mm. long; scape slender, decurved, finely pale-lepidote; scape-bracts elliptic, acute, to 13 cm. long, the lower erect, imbricate, the upper divergent to spreading; inflorescence simple, lax, 15 cm. long, the rhachis densely pale-lepidote; floral bracts broadly ovate, apiculate, the lowest almost equaling the ovary, the others much shorter; flowers sessile; sepals subequal, lance-oblong, attenuate, 20-24 mm. long, soon glabrous except at base; petals linear, over 14 cm. long, greenish when dry, recoiling in a tight spiral at anthesis, bearing 2 truncate dentate scales at base; ovary ellipsoid, sulcate with dark lines against the white indument, 9 mm. high exclusive of the 3 mm. short-cylindric epigynous tube. Pl. III, fig. 3: Floral bract and flower x 1/2; fig. 4: Sepal x 1.

Type in the Gray Herbarium of Harvard University, collected on tree, Copacabana (about 10 km. south of Mapiiri), Province of Larecaja, Department of La Paz, Bolivia, altitude 850-950 m., October 8-November 15, 1939, by B. A. Krukoff (No. 11158).



PITCAIRNIA CARDENASII L. B. Smith, sp. nov.

A P. palmeri S. Watson, cui valde affinis, rhizomatibus aucta, foliis integerrimis differt.

Reproducing vegetatively by slender scaly rhizomes, flowering 30-60 cm. high; leaves forming bulbous rosettes that soon appear lateral by the elongation of the rhizome, entire, vestite with linear white subspreading scales; sheaths broadly ovate, 2 cm. long, strongly nerved, castaneous toward base; blades dimorphic, some persistent, reduced, broadly triangular, thin, stramineous, others deciduous along a straight transverse line, linear, attenuate, 10 cm. long (probably not fully developed), 2 mm. wide, fasciculate; scape very slender, white-flocculose especially toward base; scape-bracts erect, the lower imbricate, subfoliaceous and with deciduous blades, the upper narrowly triangular, shorter than the internodes; inflorescence secundly racemose, red, sparsely white-flocculose; floral bracts narrowly triangular, exceeding the slender 6-8 mm. long pedicels; flowers suberect; sepals oblong, acute, 18 mm. long, carinate at base; petals linear-spatulate, rounded-apiculate, 45 mm. long, naked; stamens included; ovary 4/5 superior; seeds caudate-appendaged. Pl. III, fig. 5: Leaf-blade x 1/2; fig. 6: Inflorescence x 1/2; fig. 7: Sepal x 2.

Type in the U. S. National Herbarium, collected in thicket on wet rocky slopes, near Cuesta de Monos, Department of Santa Cruz, Bolivia, altitude 1000 m., November 1950, by M. Cárdenas (No. 4648).

Originally I confused this specimen with Pitcairnia rigida Mez, giving rise to the dubious citation of that species in R. C. Foster, Catalogue of the Ferns and Flowering Plants of Bolivia (p. 40).

TILLANDSIA STREPTOCARPA Baker, Journ. Bot. 25:241. 1887.

Tillandsia soratensis Baker, Journ. Bot. 25:235. 1887.

Tillandsia condensata Baker, Handb. Bromel. 164. 1889.

Tillandsia apoloensis Rusby, Bull. N. Y. Bot. Gard. 6:489.

1910.

BOLIVIA: La Paz: Apolo, alt. 1440 m., September 11, 1902, R. S. Williams 1483 (NY, type of T. apoloensis). Cochabamba: Tunari, alt. 1300 m., Kuntze s. n. (NY, type of T. soratensis). Santa Cruz: West Velasco, alt. 200 m., Kuntze s. n. (NY, type of T. condensata).

On attempting to differentiate the above species in a key, the characters previously used proved to be quite trivial and unreliable when compared with those of the type of Tillandsia streptocarpa (Balansa 615, from Paraguay, at Kew).

TILLANDSIA SUBTROPICALIS L. B. Smith, sp. nov.

A T. kuntzeana Mez, cui affinis, foliorum laminis supra glabris, scapi bracteis glabris, bracteis florigeris haud incurvatis, floribus multo minoribus differt.

Stemless, flowering 3 dm. high; leaves 15 or more in a funnel-form rosette, 20-23 cm. long; sheaths broadly elliptic, 6-7 cm.

long, dark castaneous, densely and minutely appressed-lepidote; blades ligulate with a long attenuate apex, 15-20 mm. wide, covered beneath with fine appressed cinereous scales, glabrous above; scape erect, slender; scape-bracts densely imbricate and concealing the scape, the lowest subfoliaceous, the others elliptic, glabrous and lustrous except for the small narrow blade; inflorescence laxly bipinnate from 5-7 spikes, glabrous; primary bracts ovate, about half as long as the spikes; spikes subspreading, sessile, lanceolate, acute, 45 mm. long, 12 mm. wide, strongly complanate, dense; floral bracts imbricate and wholly concealing the rhachis, ovate, acute, 18 mm. long, sharply carinate with a straight apex, coriaceous, even, lustrous; sepals lanceolate, acute, 15 mm. long, the posterior carinate, 2/3 connate. Pl. III, fig. 8: Apex of leaf x 1/2; fig. 9: Inflorescence x 1/2; fig. 10: Posterior sepals x 1.

Type in the U. S. National Herbarium, collected in the subtropical region, at Hacienda Casana on the road to Tipuani, Department of La Paz, Bolivia, 1400 meters altitude, August 5, 1922, by O. Buchtien (No. 7185).

BOLIVIA: Same as type, October 15, 1922, Buchtien 7187 (US).

#### BRAZIL

*AECHMEA NUDICAULIS* (L.) Griseb. var. *AEQUALIS* Smith & Reitz, var. nov.

A var. nudicaulis scapi bracteis fere aequalibus, supremis non aggregatis differt.

Scape-bracts small, nearly equal, not massed below the inflorescence; lowest floral bracts elliptic, attenuate, exceeding the ovaries. Pl. III, fig. 11: Scape and inflorescence x 1/2.

Type in the U. S. National Herbarium, collected in Cariacica, State of Espirito Santo, Brazil, by Alvim Seidel (No. 6-14).

*QUESNELIA SEIDELIANA* Smith & Reitz, sp. nov.

A *Q. lateralis* Wawra, cui valde affinis, scapi bracteis valde remotis, inflorescentia floribusque parvis differt.

Stemless, flowering 5 dm. high; leaves few in a fasciculate rosette, 35-40 cm. long, covered with white closely appressed dark-centered scales; sheaths elliptic, nearly 20 cm. long, tinged with dark purple especially within; blades ligulate, rounded and apiculate, 45 mm. wide, green, concolorous, laxly serrulate with dark spines 1 mm. long; scape central, erect, very slender, finely white-lanate, becoming glabrous; scape-bracts few and remote, lanceolate, thin, closely enfolding the scape, entire, inconspicuously pale-lepidote; inflorescence simple, strobilate, ellipsoid, 3 cm. long exclusive of the petals; floral bracts broadly ovate, acute, ca. 2 cm. long, about equaling the sepals, thin, nerved, pale-lepidote, yellow when dry; flowers sessile; sepals oblanceolate, acute, 15 mm. long, connate for 3 mm., white-lepidote; petals "sky blue", 25 mm. long, bearing 2 fimbriate scales at base, the blades elliptic, obtuse; stamens included; ovary ellipsoid. Pl. III, fig. 12: Apex of leaf x 1/2;

fig. 13: Inflorescence and upper scape x 1/2; fig. 14: Sepal x 1.

Type in the U. S. National Herbarium, collected in the State of Rio de Janeiro, Brazil, by Alvim Seidel (No. 62-3).

VRIESEA BARILLETII E. Morr. Belg. Hort. 33:33, pl. 3. 1883.

BRAZIL: Cultivated in the botanical garden of Liège, 1883, and supposedly coming from Ecuador, E. Morren (LG, type; photo GH). Central Brazil, Alvim Seidel (US).

Alvim Seidel, in his search for new and rare species of ornamental bromeliads, has discovered Vriesea barilletii growing naturally in central Brazil. This is not altogether surprising since all its near relatives are Brazilian and the record from Ecuador has long been regarded with suspicion.

## SYNOPSIS OF AMERICAN VELLOZIACEAE

### SUPPLEMENT II

Lyman B. Smith

As frequently happens, publication in a new field is followed by offers of more material to study. In this instance the study of the unidentified American Velloziaceae from the herbarium of the Royal Botanic Gardens, Kew, has yielded nine novelties and some interesting new records for old species.

The species here are numbered in conformity with the sequence in my original paper in Contributions from the United States National Herbarium, volume 35, part 4. The figures are all natural size.

1a. VELLOZIA LAEVIS L. B. Smith, sp. nov.

A V. macedoni Woodson, cui affinis, staminibus 6 basi exappendiculatis differt.

Nearly stemless, simple; leaves many, densely subrosulate; sheaths elliptic, 15 mm. long, very closely and coarsely nerved, brown, lustrous, glabrous, dividing and recurving at apex with age; blades long-persistent, linear, attenuate to a rounded retuse apex, 6-8 cm. long, 1.5-3.3 mm. wide, laxly serrulate on the thickened margins and beneath on the keel, glabrous; scape solitary, 8 cm. long, very slender, glabrous; ovary subglobose, 4 mm. long, smooth; tepals elliptic, rounded and apiculate, 12 mm. long, red; stamens 6, about half as long as the tepals, the filaments triangular-dilated at base and short-connate, not appendaged. Fig. 1: Leaf-blade; fig. 2: Ovary, tepal, and stamen.

BRAZIL: Minas Gerais: Among rocks, Caraça, 1824, Riedel s. n. (K, type).